

K-STSM-14.1.17-BASIC-MPPF
May 1995
Basic

Facilities Handbook for Multi-Payload Processing Facility (MPPF)

CONTRACT NAS10-11400
DRD CA-4

RELEASED

FACILITIES HANDBOOK
FOR
MULTI-PAYLOAD PROCESSING FACILITY (MPPF)

PREPARED BY:

/s/Tracie Flemming

Tracie Flemming
MDS&DS-KSC

APPROVED:

/s/Bobby Bruckner

Bobby Bruckner
Director, Payload Ground Operations

APPROVED:

/s/P. Thomas Breakfield III

P. Thomas Breakfield III
Director, Payload Flight Operations

RELEASED

LIST OF EFFECTIVE PAGES

This is the first publication of this document.

NOTE: At this time, various areas of the MPPF are still under construction and are not yet operational. When all areas of the facility are activated and/or operational, this document will be revised and reissued.

Total number of pages in this publication is 45 consisting of:

Page No.

Approval page

i thru xii

1-1 thru 1-4

2-1 thru 2-2

3-1 thru 3-12

4-1 thru 4-6

5-1 thru 5-4

6-1 thru 6-4

RELEASED

THIS PAGE INTENTIONALLY LEFT BLANK

RELEASED

TABLE OF CONTENTS

<u>Sec/Par</u>	<u>Title</u>	<u>Page</u>
I	INTRODUCTION.....	1-1
1.1	Purpose.....	1-1
1.2	Scope.....	1-1
1.3	Customer Charge.....	1-1
1.4	Facility Accommodations	1-3
1.5	Emergency Planning and Community Right-to-Know	1-3
1.6	Hazardous and Controlled Waste.....	1-3
II	FACILITY DESCRIPTION	2-1
2.1	Location and Description	2-1
2.2	Security /Access.....	2-1
2.3	Requirements and Special Considerations.....	2-1
III	PAYLOAD PROCESSING FACILITY.....	3-1
3.1	Description	3-1
3.2	Access	3-2
3.3	Mechanical Systems	3-5
3.3.1	Material Handling Equipment.....	3-5
3.3.1.1	Highbay Bridge Crane	3-5
3.3.1.2	Electric Forklift.....	3-7
3.3.1.3	Gasoline Forklift	3-7
3.3.2	Vacuum System.....	3-7
3.3.3	Compressed Air System	3-7
3.3.4	Gaseous Helium System	3-7
3.3.5	Gaseous Nitrogen System.....	3-7
3.3.6	Heating, Ventilating, and Air Conditioning Systems.....	3-7
3.3.7	Breathing Air System.....	3-7
3.3.8	Hypergol Vent System.....	3-7
3.3.9	Propellant Spill Drain System.....	3-7
3.3.10	Contamination Control and Monitoring System	3-8
3.3.11	Safety Equipment	3-8
3.3.12	Emergency Exhaust System.....	3-8
3.4	Fire Protection Systems	3-8
3.4.1	Fire Detection System.....	3-8
3.4.2	Fire Alarm System.....	3-9

TABLE OF CONTENTS (continued)

<u>Sec/Par</u>	<u>Title</u>	<u>Page</u>
3.4.3	Fire Control Equipment	3-9
3.4.4	Water Deluge System	3-9
3.5	Electrical Systems	3-9
3.5.1	Alternating Current	3-9
3.5.2	Illumination	3-12
3.5.3	Lightning Protection	3-12
3.5.4	Grounding Systems	3-12
3.5.5	Power Kill Switch	3-12
3.5.6	Back-Up Power.....	3-12
3.5.7	Conductive Epoxy Resilient Flooring	3-12
 IV	 MULTI-OPERATIONS SUPPORT BUILDING	
4.1	Description	4-1
4.2	Access	4-1
4.3	Customer Areas	4-1
4.3.1	Office area	4-1
4.3.2	Conference Room	4-1
4.3.3	Breakroom	4-1
4.3.4	Storage Area	4-1
4.3.5	Payload Control Rooms.....	4-1
4.3.6	Communications Room	4-2
4.3.7	MPPF.....	4-2
 VI	 COMMUNICATIONS AND DATA HANDLING	 5-1
5.1	Communications.....	5-1
5.1.1	Operational Intercommunications System - Digital.....	5-1
5.1.2	Closed Circuit Television.....	5-1
5.1.3	Other Communications.....	5-1
5.2	Data Handling	5-1
5.2.1	Wideband Cable Transmission System	5-1
5.2.2	Audio Frequency Capability	5-2
5.2.3	Radio Frequency Capability	5-2

RELEASED

TABLE OF CONTENTS (continued)

<u>Sec/Par</u>	<u>Title</u>	<u>Page</u>
VII	FACILITY DESCRIPTION SUMMARY, MPPF	6-1
6.1	Floor Space	6-1
6.2	Clear Vertical Height	6-1
6.3	Equipment Entry	6-1
6.4	Crane/Hoist	6-1
6.5	Crane Hook Height.....	6-1
6.6	Systems/Equipment	6-2
6.7	Temperature/Relative Humidity.....	6-2
6.8	Cleanliness	6-2
6.9	Payload Canister.....	6-3
6.10	Communications and Data Handling Equipment.....	6-3

RELEASED

THIS PAGE INTENTIONALLY LEFT BLANK

RELEASED

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1-1	KSC/CCAS Payload Processing Facilities	1-2
2-1	MPPF Complex Site Plan	2-2
3-1	MPPF	3-2
3-2	MPPF Floor Plan	3-3
3-3	MPPF Mechanical Systems	3-6
3-4	MPPF Electrical and Fire Protection Systems	3-11
4-1	MOSB Floor Plan	4-3
4-2	Office Area	4-5
4-3	MOSB Electrical and Fire Protection Systems	4-6
5-1	MPPF Communication Systems	5-3
5-2	MOSB Communication Systems	5-4

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
3-1	MPPF Room Specifications	3-4
3-2	Crane Speeds - Meter Per Minute	3-5
3-3	Cleanliness Requirements	3-10
4-1	MOSB Room Specifications	4-4
5-1	RF Capability for the MPPF and MOSB	5-2

RELEASED

THIS PAGE INTENTIONALLY LEFT BLANK

RELEASED

LIST OF ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this document. A more comprehensive listing is contained in NASA Reference Publication 1059 Revised, Space Transportation System and Associated Payloads: Glossary, Acronyms, and Abbreviations.

A & DC	administrative and data communications
A/D	analog to digital
ac	alternating current
°C	degrees Celsius
CCAS	Cape Canaveral Air Station
CCTV	closed circuit television
CDT	countdown time
CWA	clean work area
D/A	digital to analog
EGR	electrical ground receptacle
°F	degrees Fahrenheit
GHe	gaseous helium
GMIL	Spaceflight Tracking and Data Network Station (KSC)
GMT	Greenwich Mean Time
GN ₂	gaseous nitrogen
GSE	ground support equipment
HVAC	Heating, Ventilating, and Air Conditioning
Hz	hertz
IR	infrared
IRIG	interrange instrumentation group
KMI	Kennedy Management Instruction
KSC	John F. Kennedy Space Center
LC	Launch Complex
LSSM	Launch Site Support Manager

RELEASED

LIST OF ABBREVIATIONS AND ACRONYMS (continued)

Mbps	megabits per second
MET	Mission Elapsed Time
MHz	megahertz
MOSB	Multi-Operations Support Building
MPPF	Multi-Payload Processing Facility
NASA	National Aeronautics and Space Administration
OIS-D	operational intercommunications system - digital
OPF	Orbiter Processing Facility
P & AW	paging and area warning
PA	public address
PACAS	Personnel Access Control Accountability System
PHSF	Payload Hazardous Servicing Facility
PKS	power kill switch
PPF	payload processing facility
psig	pounds per square inch gage
RF	radio frequency
SAA	satellite accumulation area
SID	Standard Interface Document
T & CD	timing and countdown
TAIR	Test Assembly Inspection Record
UTC	coordinated universal time
UV	ultraviolet
V	volt
VPF	Vertical Processing Facility
WBFO	wideband/fiber optics
WBTS	wide-band transmission system

RELEASED

FOREWORD

Launch site payload processing facilities are described in three levels of documentation. These levels and their purposes are:

- a. K-STSM-14.1, Launch Site Accommodations Handbook for Payloads - This document provides a brief summary of each facility and a general description of John F. Kennedy Space Center (KSC) launch and landing site operations.
- b. Facility Handbooks - Each handbook provides a narrative description of the facility and its systems. Also, general operating rules, regulations, and safety systems are discussed in these handbooks. Handbooks available are:

K-STSM-14.1.1	<i>Facilities Handbook for Building AE</i>
K-STSM-14.1.2	<i>Facilities Handbook for Building AO</i>
K-STSM-14.1.3	<i>**Facilities Handbook for Building AM</i>
K-STSM-14.1.4	<i>**Facilities Handbook for Hangar S</i>
K-STSM-14.1.6	<i>**Facilities Handbook for Explosive Save Area 60A (ESA-60)</i>
K-STSM-14.1.7	<i>Facilities Handbook for Spacecraft Assembly and Encapsulation Facility - 2 (SAEF-2)</i>
K-STSM-14.1.8	<i>Facilities Handbook for Radioisotope Thermoelectric Generator Facility (RTG-F)</i>
K-STSM-14.1.9	<i>Facilities Handbook for Life Sciences Support Facility - Hangar L</i>
K-STSM-14.1.10	<i>*Payload Accommodations at the Rotating Service Structure (RSS)</i>
K-STSM-14.1.12	<i>Facilities Handbook for Vertical Processing Facility (VPF)</i>
K-STSM-14.1.13	<i>*Orbiter Processing Facility (OPF) Payload Processing and Support Capabilities</i>
K-STSM-14.1.14	<i>*Operations and Checkout (O&C) Building Payload Processing and Support Capabilities</i>
K-STSM-14.1.15	<i>Facilities Handbook for Payload Hazardous Servicing Facility (PHSF)</i>
K-STSM-14.1.16	<i>Space Station Processing Facility (SSPF) Processing and Support Capabilities</i>
K-STSM-14.1.17	<i>Facilities Handbook for Multi-Payload Processing Facility (MPPF)</i>

These facility handbooks are not under configuration control; however, they will be reissued as necessary in order to maintain usefulness to customers in their planning for launch site processing of their payloads.

RELEASED

- * These handbooks are titled differently because the facilities also serve functions other than payload support. Only the payload accommodations are described in these documents.
- ** These handbooks are being phased out and will not be updated; the facilities are no longer available for payload processing activities.
- c. Standard Interface Documents (SID's) - These reference documents are intended to provide the payload-to-facility interface design details for these launch site payload processing facilities.

SID 79K12170	<i>Payload Ground Transportation Canister</i>
SID 79K16210	<i>Vertical Processing Facility</i>
SID 79K16211	<i>Horizontal Processing Facility (O&C Building)</i>
SID 79K17644	<i>Payload Strongback</i>
SID 79K18218	<i>Launch Pad 39A</i>
SID 79K28802	<i>Launch Pad 39B</i>
SID 79K18745	<i>Orbiter Processing Facility</i>
SID 82K00463	<i>Payload Environmental Transportation System Multi-use Container</i>
SID 82K00760	<i>Space Station Processing Facility</i>
SID 82K03223	<i>Multi-Payload Processing Facility</i>

SID's are not available for all launch site payload processing facilities. In these cases, the facility handbooks must be used for design interface information and customers should ask for verification of any areas of concern. When SID's are available, they should be used as the official definition of the facility interfaces. There are some SID's for which there are no handbooks; e.g., the payload strongback and the Payload Environmental Transportation System (PETS) multi-use container. In these cases, the SID's must be used.

Customers may obtain copies of any of these documents through the assigned Launch Site Support Manager (LSSM).

RELEASED

SECTION I

INTRODUCTION

1.1 PURPOSE

The purpose of this handbook is to provide basic information regarding payload processing and support capabilities in the Multi-Payload Processing Facility (MPPF) on the Kennedy Space Center (KSC). The facility and its location are shown in figure 1-1. This facility will be used as a payload processing facility (PPF).

When used as a PPF, the processing flow begins when a payload and its associated ground support equipment (GSE) arrive. After receiving and inspection, final assembly or buildup of the payload to its launch configuration is initiated. This activity could include the installation of solar panels, antennas, and other items that were shipped separately to the launch site. At this stage in processing, stand-alone system tests and payload functional testing with payload-unique ground checkout equipment are conducted.

The KSC Launch Site Support Manager (LSSM), in conjunction with the Launch Site Support Team and the payload customer, will determine launch site facility utilization assignments based on identified payload requirements and overall Space Shuttle mission schedules or on the National Aeronautics and Space Administration (NASA) purchased Expendable Launch Vehicles schedules. Handbooks identified in the Foreword describe the configuration of PPF's on both the Cape Canaveral Air Station (CCAS) and KSC Payload Management.

1.2 SCOPE

This handbook is intended to be used by the payload organizations as a guide for planning of payload activities in the MPPF. It details the capabilities and standardized interfaces of the MPPF. Detailed payload oriented interfaces are contained in SID 82K03223, *Multi-Payload Processing Facility*.

1.3 CUSTOMER CHARGE

Use of the MPPF for payload processing is considered an optional service.

RELEASED

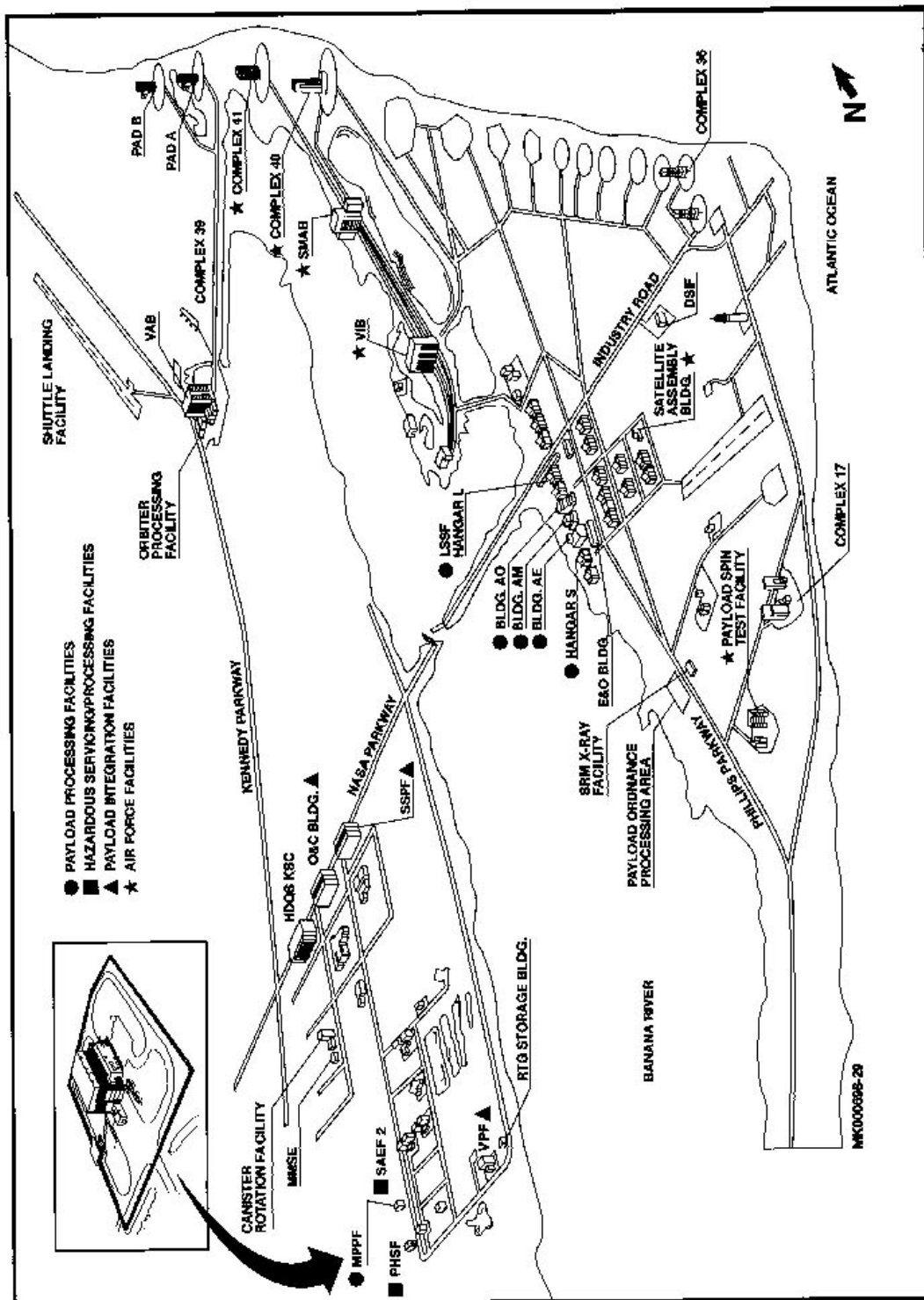


Figure 1-1. KSC/CCAS Payload Processing Facilities

1.4 FACILITY ACCOMMODATIONS

The facility accommodations available to the customer as identified herein provide support to a variety of NASA and NASA customer payloads and may accommodate payload elements being processed simultaneously. The customer must remain cognizant during design development of the necessity to share these facilities with other payload elements. Individual payload customer requirements should be coordinated closely with the KSC LSSM to assure that support is available when needed.

The MPPF is considered a customer-operated facility where the customer is responsible for day-to-day operations with exception of crane pre-operation checks. Crane pre-operation checks are the responsibility of the Payload Ground Operations Contractor (PGOC) or NASA KSC personnel.

Customers should be familiar with the "Multi-Payload Processing Facility" (MPPF), Emergency Procedures Document (EPD), Operations and Maintenance Instruction (OMI) No. S9935."

1.5 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW

The Emergency Planning and Community Right-to-Know Act, which is Title III of the Superfund Amendments and Reauthorization Act of 1986, was enacted to require persons to report the amount and location of hazardous chemicals produced, stored, used, or released to the environment each year. Therefore, ninety days prior to their arrival, customers must complete and return to their assigned LSSM, both KSC form 28-185, "*Environmental Health Protection Program Toxic Substance Registry System (TSRS) Inventory*" and Material Safety Data Sheets (MSDS) for each chemical to be brought onto KSC.

1.6 HAZARDOUS AND CONTROLLED WASTE

Customers will also be asked to fill out KSC Form 26-551, "Process Waste Questionnaire," for any hazardous and controlled waste they expect to generate at KSC during processing. This will be done ninety days prior to arrival. All waste generated at KSC will be managed in accordance with the requirements of KHB 8800.7, *Hazardous Waste Management*.

Once a customer has identified launch site waste generations, a satellite accumulation area (SAA) will be set up in facilities denoted as points of generation of these wastes.

These SAA's will be established in order to comply with the intent of the Resource Conservation and Recovery Act (RCRA) of 1976, which was established to institute a national program to control the generation, storage, transportation, treatment, and disposal of hazardous waste.

RELEASED

Customers should coordinate any waste operations or problems with their assigned LSSM. Regulations for the use of, control of, and disposal of waste at the launch site are strictly enforced.

RELEASED

SECTION II

FACILITY DESCRIPTION

2.1 LOCATION AND DESCRIPTION

The MPPF complex is located just off E Avenue (figure 2-1) south of the Operations and Checkout (O&C) building in the KSC industrial area.

The MPPF complex comprises two major structures. The major structures are: the MPPF, containing a highbay, lowbay, and equipment airlock; and a Multi-Operations Support Building (MOSB), containing offices, and payload control rooms. The MPPF is currently used to process non-hazardous payloads.

The MPPF highbay is 40.2 m (132 ft) long x 18.9 m (60 ft) wide with a ceiling height of 18.9 m (62 ft). The lowbay is a 10.4 m (34 ft) long x 10.4 m (34 ft) wide processing area and has a ceiling height of 6.1 m (20 ft). The highbay and lowbay are rated as a Level IV - 100K clean work area (CWA). The equipment airlock is 11.9 m (39 ft) long x 8.5 m (28 ft) wide with a ceiling height of 6.1 m (20 ft), and is rated as a Level V - 300K CWA.

The MPPF and the MOSB were constructed by NASA in 1994.

2.2 SECURITY/ACCESS

A chain link fence encircles the MPPF. Primary access to the facility is through an 8.2 m (27 ft) wide gate located in the east perimeter. Access is also available through a customer gate on the southwest side of the facility. Both gates remain open as long as the facility is used to process only non-hazardous payloads. Security within the facility can be arranged as required using a Personnel Access Control Accountability System (PACAS). Personnel without a PACAS badge must contact the NASA Facility Manager during regular office hours to schedule access to the facility.

2.3 REQUIREMENTS AND SPECIAL CONSIDERATIONS

Cranes, vertical lift doors, and forklifts may be operated only by personnel trained and certified by KSC; this training and certification must be arranged by the LSSM. The KSC contractor support personnel will provide applicable training for payload organizations as required in accordance with Kennedy Management Instruction (KMI) 6430.4, *Examination and Licensing of KSC Facility Crane Operators* and KMI 6730.3C, *Examination and Licensing of KSC Special or Heavy Equipment Operators*. Physical examinations at your home station, with coordination through BOC/NASA biomedical offices, are a prerequisite to crane and/or forklift training. The KSC contractor support personnel will also provide door operation training.

RELEASED

Personnel limits and other safety restrictions and security controls have been established for this facility. These restrictions include a badge exchange within the facility to control and account for the total number of people in the area at all times.

The MPPF has an interstitial wall area surrounding the entire CWA. This is a confined space area used for maintaining facility systems. A permit is required for access into the interstitial wall area. Requests for access must be approved by the facility manager.

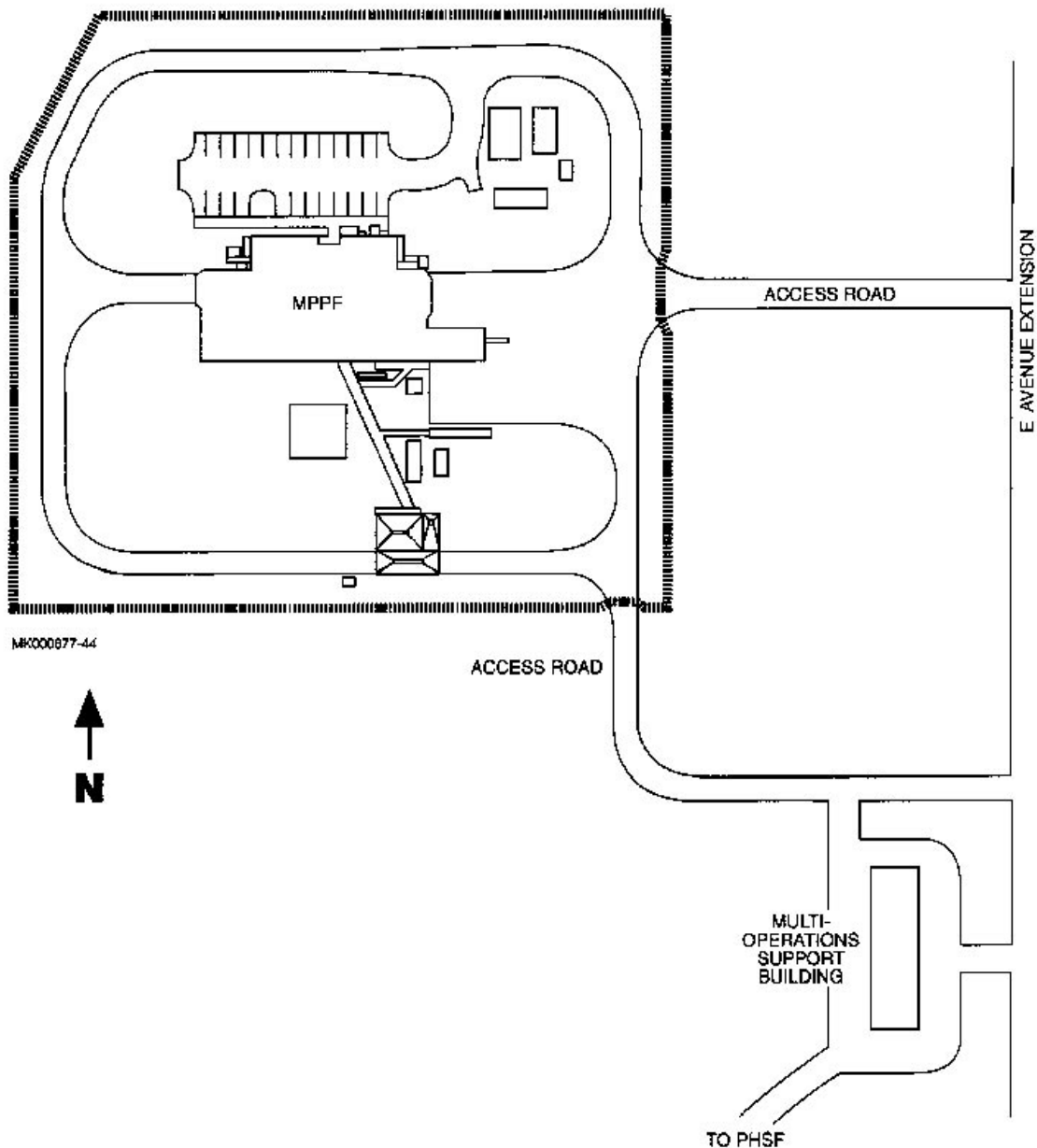


Figure 2-1 MPPF Complex Site Plan

SECTION III

MULTI-PAYLOAD PROCESSING FACILITY (M7-1104)

3.1 DESCRIPTION

The MPPF (figure 3-1) is a steel frame building covered with insulated metal siding and contains a highbay, lowbay, and equipment airlock. The highbay and lowbay meet the requirements of a Level IV class 100,000 CWA and the equipment airlock meets a Level V class 300,000 CWA per K-STSM-14.2.1, *KSC Payload Facility Contamination Control/Requirements Plan*.

The highbay (room 1150) is the main processing area and contains three areas that can be used as workstations. It is serviced by a 18.1 metric ton (20-ton) bridge crane traveling on east-west overhead rails. The highbay contains a 6.1 m x 5.5 m x 3.6 m (20 ft x 18 ft x 12 ft) horizontal, laminar flow class 100 CWA available for customer use. The lowbay (room 1180) will be used for processing smaller payloads and the equipment airlock (room 1190) will be used for equipment staging and preparation for entry to the highbay.

Connected to the north wall of the MPPF is a single-story concrete block structure containing the electrical/mechanical room, the Test Assembly Inspection Record (TAIR) station, an air shower, breakroom, and other support rooms.

A single-story concrete block flight data communications room (room 1145) is connected to the MPPF on the southeast wall of the highbay and provides fully-equipped racks and wall-mounted equipment to support the following communication systems:

- a. administrative and data communications (A & DC)
- b. closed circuit television (CCTV)
- c. operational intercommunications system - digital (OIS-D)
- d. paging and area warning (P & AW)
- e. timing and countdown (T & CD)
- f. wideband/fiber optics (WBFO)

RELEASED

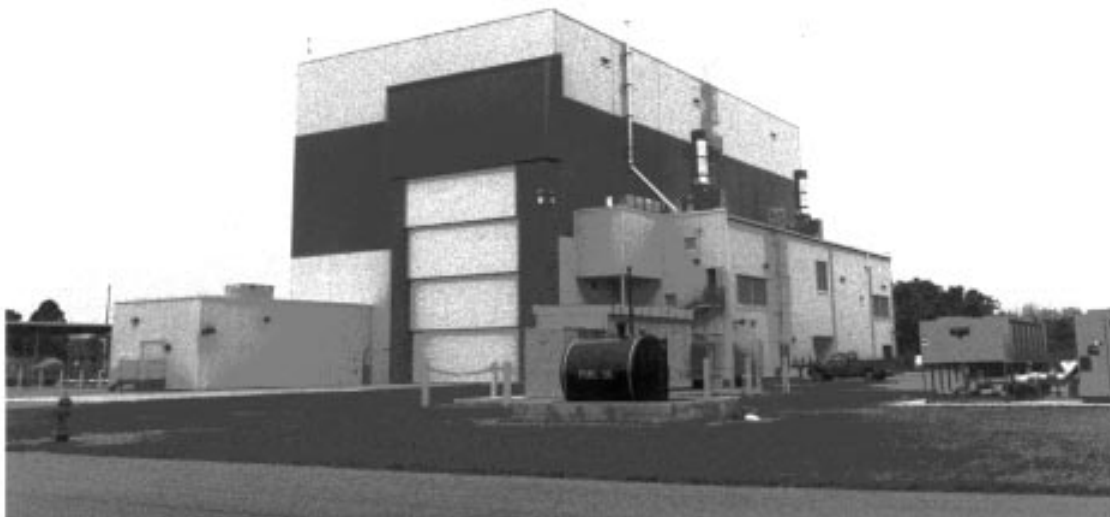


Figure 3-1. MPPF

3.2 ACCESS

A PACAS badge will allow employees and customers to enter and exit through room 1120, the personnel access control room. Cipher locks are located on doors leading into other areas. Personnel may enter the MPPF highbay through the air shower via the garment change room, room 1128. Equipment can enter through the equipment airlock, room 1190, on the west side of the building or through the vertical lift door on the east side of the highbay. Access procedures and active garment requirements are posted and should be read prior to accessing these areas. A floor plan of the MPPF is shown in figure 3-2; room specifications are shown in table 3-1.

RELEASED

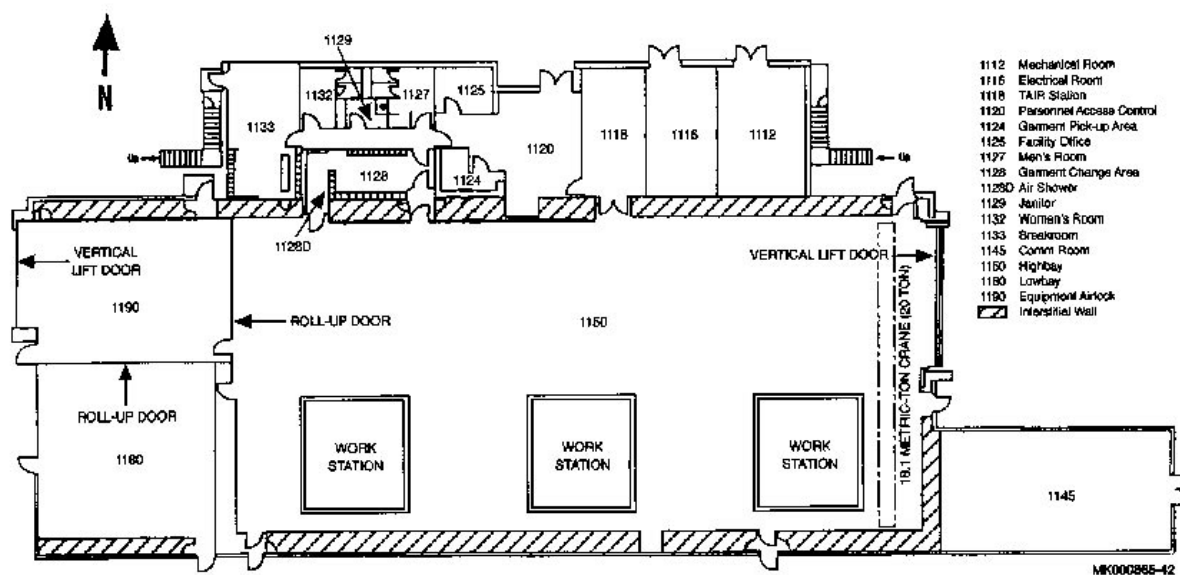


Figure 3-2. MPPF Floor Plan

RELEASED

Table 3-1. MPPF Room Specifications

Rm No.	Dimensions	Usable Area	Ceiling Height	Largest Doorway	Floor	Walls	Ceiling	Function
1112	5.1 m x 7.3 m (24 ft x 17 ft)	N/A	ES	N/A	concrete	GWB	EXP	Mechanical Room
1116	3.7 m x 7.6 m (12 ft x 25 ft)	N/A	ES	N/A	concrete	GWB	EXP	Electrical Room
1118	3.6 m x 7.6 m (12 ft x 25 ft)	N/A	3 m (10 ft)	1 m x 2.4 m (3.6 ft x 8 ft)	VT	GWB	GWB	TAIR Station
1120	4.6 m x 6.4 m (15 ft x 21 ft)	N/A	2.7 m (9 ft)	N/A	VT	GWB	ACT	Personnel Access Control
1124	3.4 m x 4 m (11 ft x 13 ft)	N/A	2.7 m (9 ft)	N/A	VT	GWB	ACT	Garment Pick-up Area
1125	2.7 m x 3.4 m (9 ft x 11 ft)	N/A	2.7 m (9 ft)	N/A	VT	GWB	ACT	Facility Office
1128	6 m x 2.4 m (8 ft x 20 ft)	N/A	2.7 m (9 ft)	N/A	VT	GWB	ACT	Garment Change Area
1133	4.3 m x 7.6 m (14 ft x 25 ft)	N/A	2.7 m (9 ft)	N/A	VT	GWB	ACT	Breakroom
1145	13.4 m x 7 m (44 ft x 23 ft)	N/A	3 m (10 ft)	.9 m x 2.1 m (3 ft x 7 ft)	AF	GWB	EXP	Flight Data/Comm Room
1150	18.2 m x 40.2 m (60 ft x 132 ft)	735.8 m ² (7920 ft ²)	18.9 m (62 ft)	8.5 m x 12.8 m (28 ft x 42 ft)	EF	GWB	GWB	Highbay
1180	10.4 m x 10.4 m (34 ft x 34 ft)	107.4 m ² (1156 ft ²)	6.1 m (20 ft)	6.1 m x 4.6 m (20 ft x 15 ft)	EF	GWB	GWB	Lowbay
1190	11.9 m x 8.5 m (39 ft x 28 ft)	101.4 m ² (1092 ft ²)	6.1 m (20 ft)	6.1 m x 4.6 m (20 ft x 15 ft)	EF	GWB	GWB	GSE Airlock

LEGEND

ACT - Acoustic Tile
 AF - Access Floor
 CVT - Conductive Vinyl Tile
 EF - Epoxy Floor

EXP - Expansion
 GWB - Gypsum Wallboard - Painted
 VT - Vinyl Tile
 ES - Exposed Structure

RELEASED

3.3 MECHANICAL SYSTEMS

The MPPF mechanical systems (figure 3-3) include material handling equipment; vacuum; compressed air; gaseous helium (GHe); gaseous nitrogen (GN₂); heating, ventilating, and air-conditioning (HVAC); contamination control and monitoring; fire protection equipment; safety equipment; and vertical lift and roll-up doors.

3.3.1 MATERIAL HANDLING EQUIPMENT.

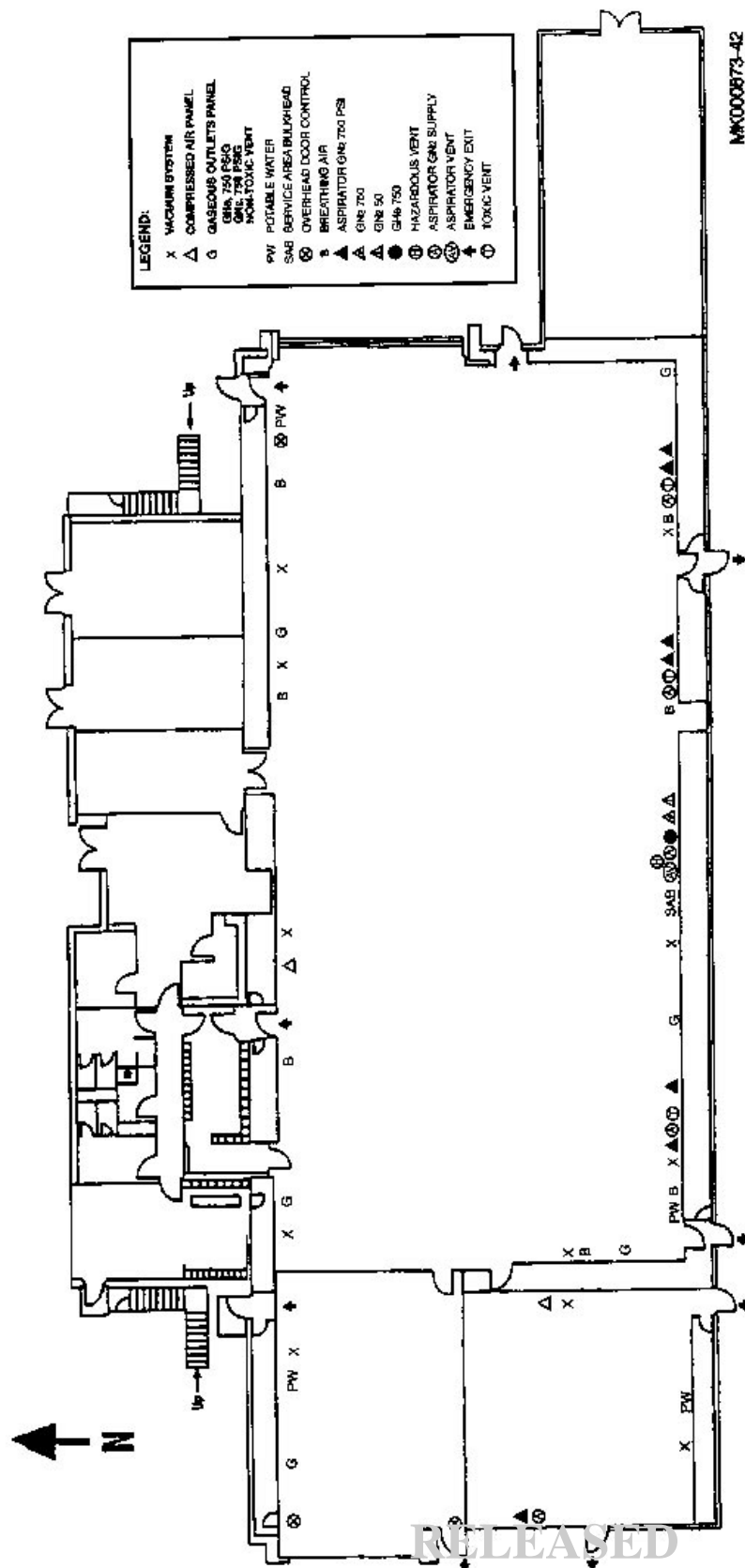
3.3.1.1 Highbay Bridge Crane. The MPPF highbay 18.1 metric ton (20-ton) bridge crane operates on twin runway girder rails in an east-west direction. The effective east-west travel of the hoist (hook centerline to wall) is to a point 3.28 m (10 ft 9 in) from the east wall, and 2.69 m (8 ft 10 in) from the west wall. The effective north-south travel of the hoist (hook centerline to wall) is 2.29 m (7 ft 6 in) from the north and 2.26 m (7 ft 5 in) from the south wall.

The nominal hook height for the crane is 14.9 m (49 ft). See table 3-2 for crane speeds.

Table 3-2. Crane Speed - Meters Per Minute

18.1 Metric-ton (20 ton)	Speed
<u>Hoist at Full Load</u>	
Main	15/5 fpm
Micro	.5 fpm
<u>Bridge</u>	
Main	23 fpm
Micro	1.5 fpm
<u>Trolley</u>	
Main	7.3/23 fpm
Micro	1.4 fpm

RELEASED



NK000873-42

Figure 3-3. MPPF Mechanical Systems

3.3.1.2 Electric Forklift. An electric forklift capable of lifting 1,814 kg (4,000 lbs) is available to move GSE in the airlock or service bay.

3.3.1.3 Gasoline Forklift. A gasoline forklift capable of lifting 3,628 kg (8,000 lbs) is available to move equipment in the perimeter areas. This forklift is not to be used within any portion of the MPPF.

3.3.2 VACUUM SYSTEM. A total of 11 vacuum outlets are located in the highbay, lowbay, and equipment airlock. Access is available for all areas up to the ceiling. The system will support two simultaneous operations of 80 sfpm.

3.3.3 COMPRESSED AIR SYSTEM. Two air compressors, located in room 1112, supply regulated compressed air to both the highbay and the equipment airlock. The outlets have 5-micron filters and are located in recessed wall cabinets with cylinder locks on the doors. Compressed air is available at 6.2 bars (90 psig) and 8.6 bars (125 psig).

3.3.4 GASEOUS HELIUM (GHe) SYSTEM. GHe (Grade A, MIL-P-27407A) is supplied through a regulating panel located on the south side of the building. The GHe is available through outlets in both the highbay and equipment airlock at rates of 51.7 bars (750 psig) and 206.9 bars (3,000 psig) maximum. These outlets are also located in recessed wall cabinets with cylinder locks on the doors.

3.3.5 GASEOUS NITROGEN (GN₂) SYSTEM. GN₂ (Grade B, MIL-P-27401C) is supplied from the industrial area 413.8 bars (6,000 psig) GN₂ system. The connection to this system is located on the south side of the building. A GN₂ regulating panel (also located on the south side of the building) filters the GN₂ to 10 microns and regulates the GN₂ down to 51.7 bars (750 psig) and 206.9 bars (3,000 psig) to outlets available in both the highbay and equipment airlock. The outlets are located in recessed wall cabinets with cylinder locks on the doors.

3.3.6 HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS. Air enters the MPPF through High Efficiency Particle Air (HEPA) filters mounted in the ceilings of the highbay, lowbay, equipment airlock, and TAIR station, and is guaranteed class 5,000 air at the filter discharge for the air-conditioning and reheat systems. These systems maintain a temperature of 21.7 +/- 3.3 °C (71 +/- 6 °F) with a maximum relative humidity of 55 percent. Air is exchanged minimally 8 changes per hour and positive pressure is maintained at all times.

3.3.7 BREATHING AIR SYSTEM. Not activated.

3.3.8 HYPERGOL VENT SYSTEM. Not activated.

3.3.9 PROPELLANT SPILL DRAIN SYSTEM. Not activated.

RELEASED

3.3.10 CONTAMINATION CONTROL AND MONITORING SYSTEM. The MPPF highbay and lowbay are rated as a CWA level 4 and the equipment airlock is rated as a CWA level 5. CWA entry rules are posted in rooms 1120 and 1128.

An Environmental Monitoring System provides real-time and historical data on the necessary parameters relative to maintaining a clean working environment and is supplemented by physical measuring techniques. Environmental conditions are continuously monitored, stored, and recorded for temperature, relative humidity, and airborne particle concentration. Surface particulate matter, nonvolatile residue, and volatile hydrocarbon monitoring is performed by conventional methods. (See table 3-3 for cleanliness requirements.)

Sensor sets have been installed in the CWA. Each set contains a temperature sensor that reads °F, a relative humidity sensor that reads percentage, and a particle counter that measures airborne particle concentration.

The Continuous Monitor/Analyzer, referred to as the mainframe, is the heart of the monitoring equipment. The mainframe is centrally located and remote from the sensors. The multiple sensor outputs are connected by coaxial cable. The mainframe identifies the information from the sensors, files it in time-correlated channels of data, and provides an output to the host computer system. The mainframe and the computer are located in room 1129. Real-time data and a printed record of environmental out-of-specification conditions (if any) are available from the computer.

3.3.11 SAFETY EQUIPMENT. A combination eyewash and safety shower is located adjacent to each emergency exit leading from the highbay, equipment airlock, and attached support rooms.

3.3.12 EMERGENCY EXHAUST SYSTEM. Not activated.

3.4 FIRE PROTECTION SYSTEMS

3.4.1 FIRE DETECTION SYSTEM. Manually activated pull stations are located at strategic locations throughout the MPPF as shown in figure 3-4. Heat activated detectors are installed in the ceilings of rooms 1180 and 1190 of the MPPF. Automatic flame detectors (ultraviolet (UV)/infrared (IR)) are installed in the highbay. Photoelectric smoke detectors are utilized in room 1145. Activation of either a heat detector, flame detector, smoke detector, manual pull station, sprinkler system water flow switch, or water deluge pressure switch will initiate a KSC Fire and Rescue department response. Facility air handlers will automatically shut down and fire alarm bells will sound for evacuation of personnel from the MPPF.

RELEASED

3.4.2 FIRE ALARM SYSTEM. Hand-operated, pull-type fire alarm stations and fire alarm break-glass stations are located at strategic places (see figure 3-4) throughout the building. Activation of either a detector, manual pull station, or flow switch causes a signal to be transmitted to the KSC Launch Control Center, Room 1P10, KSC Protective Services Control Center. At the same time, alarm bells are sounded in and around the building, the HVAC dampers close, and the air handlers are shut down to contain the fire.

3.4.3 FIRE CONTROL EQUIPMENT. Fire extinguishers are located at strategic locations throughout the MPPF as shown in figure 3-4. The highbay is protected by a deluge system, which is not activated. Authorized personnel must manually turn system on to initiate water flow. Pre-action sprinkler systems are utilized in rooms 1145, 1180, and 1190. An automatic wet-pipe sprinkler system is used for the remainder of the MPPF.

3.4.4 WATER DELUGE SYSTEM. The automated water deluge system is not activated. Authorized personnel must manually turn system on to initiate water flow.

3.5 ELECTRICAL SYSTEMS

3.5.1 ALTERNATING CURRENT (ac). The ac industrial power delivered to the MPPF highbay, lowbay, equipment airlock, and attached support rooms is as shown in figure 3-4.

	<u>Voltage</u>	<u>Amperage</u>	<u>Phase</u>	<u>Hz</u>	<u>Type Receptacle</u>
Highbay					
*a.	120	30	single	60	Crouse-Hinds
b.	120/208	30	three	60	Crouse-Hinds
c.	480	100	three	60	Crouse-Hinds
d.	115	20			Crouse-Hinds
Lowbay					
a.	120/208	30	three	60	Crouse-Hinds
b.	120/208	100	three	60	Crouse-Hinds
c.	115	20			Crouse-Hinds
Equipment Airlock					
a.	120/208	30	three	60	Crouse-Hinds
b.	120/208	100	three	60	Crouse-Hinds
c.	115	20			Crouse-Hinds

* In addition to those shown on figure 3-4.

Locations and types of receptacles are identified in SID 82K03223.

Table 3-3. Cleanliness Requirements [1]

Clean Work Area Levels		Level #4	Level #5
Parameter		Air Flow Non-Laminar	Air Flow Non-Laminar
Maximum Airborne Particulate Counts (Per Cubic Foot)	Req $\geq 0.5 \mu\text{m}$ Req $\geq 5.0 \mu\text{m}$ Monitoring	100,000 700 Continuous	300,000 1,000 Monthly
Temperature (°F) [3]	Requirement Monitoring	71 \pm 6 Continuous	71 \pm 6 Continuous
Relative Humidity (Percent) [3]	Requirement Monitoring	55 Max Continuous	55 Max Monthly
Maximum Particle Fallout [2]	Goal Monitoring [4]	Level 750 Continuous	Level 1000 Every 6 Months
Maximum NVR (mg/0.1m ² /month)	Requirement Monitoring [4]	1.0 Continuous	2.0 Annually
Maximum Volatile Hydrocarbons (PPM) (v/v)	Requirement Monitoring [4]	15 Every 2 Weeks	N/A N/A
Minimum Positive Pressure	Requirement Monitoring	0.02 in. H ₂ O Daily	N/A N/A
Minimum Air Changes	Requirement	4/Hour	2/Hour
[1] During Periods of Operation [2] Levels Per MIL-STD-1246B for a 24-Hour Period [3] Program OMRSD May Supersede These Requirements [4] As specified by KCI-HB-5340.1			

RELEASED

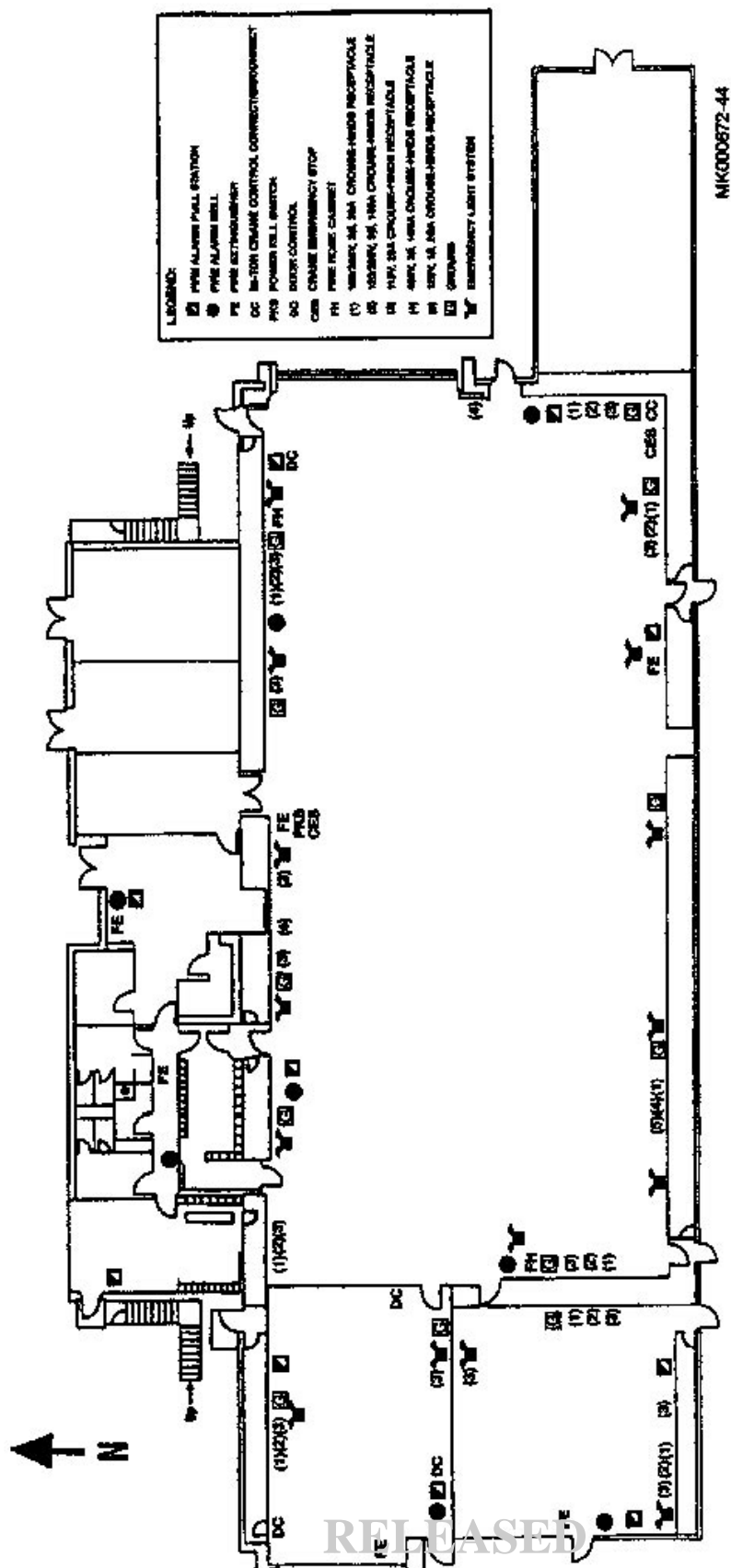


Figure 3-4. MPPF Electrical and Fire Protection System

3.5.2 ILLUMINATION. Illumination in the highbay, lowbay, and the equipment airlock is provided by high-pressure-sodium light fixtures. Illumination in the remaining support rooms comes from flush-mounted ceiling fluorescent light fixtures. The highbay and equipment airlock contain emergency light fixtures that automatically turn on during an ac power failure through two battery uninterruptible power supply (UPS) units. Attached support rooms have a battery-powered emergency lighting unit mounted on the wall. Each unit has two bulbs and will turn on automatically during an ac power failure.

NOTE

All electrical fixtures and receptacles in the highbay and equipment airlock are explosion proof and meet the requirements for Class One, Division Two, Group D atmosphere.

3.5.3 LIGHTNING PROTECTION. A system of roof-mounted air terminals, down conductors, and grounding rods interconnected by No. 4/0 copper wire provides lightning protection. This system is connected to the external ground counterpoise.

3.5.4 GROUNDING SYSTEMS. The MPPF has an equipment grounding system (see figure 3-4). Nine equipment ground plates (EGP's) are located on the walls of the highbay, lowbay, and equipment airlock. Three countersunk electrical ground receptacles (EGR's) are located in the floor of the highbay. The EGR's are used to ground equipment during hoisting operations and ground the support equipment to the structural grounding system. All structural metal and the conductive epoxy floor in the highbay and equipment airlock are also connected to the structural grounding system.

3.5.5 POWER KILL SWITCH (PKS). A single-point electrical emergency cutoff circuit is provided. A receptacle is mounted on the highbay north wall where a 30.48 m (100 ft) cord with a PKS plugs into the receptacle. Activation of this switch will remove ac power from all receptacles in the highbay.

3.5.6 BACK-UP POWER. If required, provisions have been made for back-up power to be supplied by a government-furnished diesel generator through an automatic transfer switch located on the interior wall of room 1116. This back-up system will supply power to the highbay receptacles.

3.5.7 CONDUCTIVE EPOXY FLOORING. The highbay, lowbay, and equipment airlock floors are covered with resilient conductive epoxy. The conductivity of the floor system is less than 25,000 OHMS on average.

RELEASED

SECTION IV

MULTI-OPERATIONS SUPPORT BUILDING (M7-1357-North)

4.1 DESCRIPTION

The MOSB (figure 4-1) is located southeast of the MPPF, just off of E-Avenue. The building is a prefabricated, one-story steel building covered on the exterior with insulated metal siding. This building was designed to be the office area and payload control center for customers using the MPPF and the Payload Hazardous Servicing Facility (PHSF). The north portion supports the MPPF, while the south portion supports the PHSF. This document supports the north end, or MPPF side. See table 4-1 for room specifications.

4.2 ACCESS

Personnel have access to the MOSB customer areas during normal duty hours with exception of payload control rooms (109 and 110) when customers elect to limit entry into these areas.

4.3 CUSTOMER AREAS

4.3.1 OFFICE AREA. The office area is located in room 160 and provides seating for approximately 50 customers and the NASA facility managers (see figure 4-2). The offices are on a raised floor. The facility control room, room 148, is also convertible to office space for approximately 20 customers.

4.3.2 CONFERENCE ROOM. Conference room 192 is adjacent to the storage area, available for customer's use, and will comfortably seat 35 persons. It is equipped with overhead video projectors, three screens, OIS-D, teleconference capability, and countdown and mission elapsed time clocks.

4.3.3 BREAKROOM. Breakroom 182 is located south of the conference room and contains vending machines located in the MOSB.

4.3.4 STORAGE AREA. Room 195 is an air-conditioned storage area for customer GSE, processing storage, and facility storage.

4.3.5 PAYLOAD CONTROL ROOMS. Rooms 148 and 153 will function as the customer ground station for checkout and testing of their payload (located in the MPPF service bay) and are located in the south end of the building. The MOSB control room 153 provides communication distribution boxes, timing display units and OIS-D end

RELEASED

instruments (EI's) to support the following communication systems:

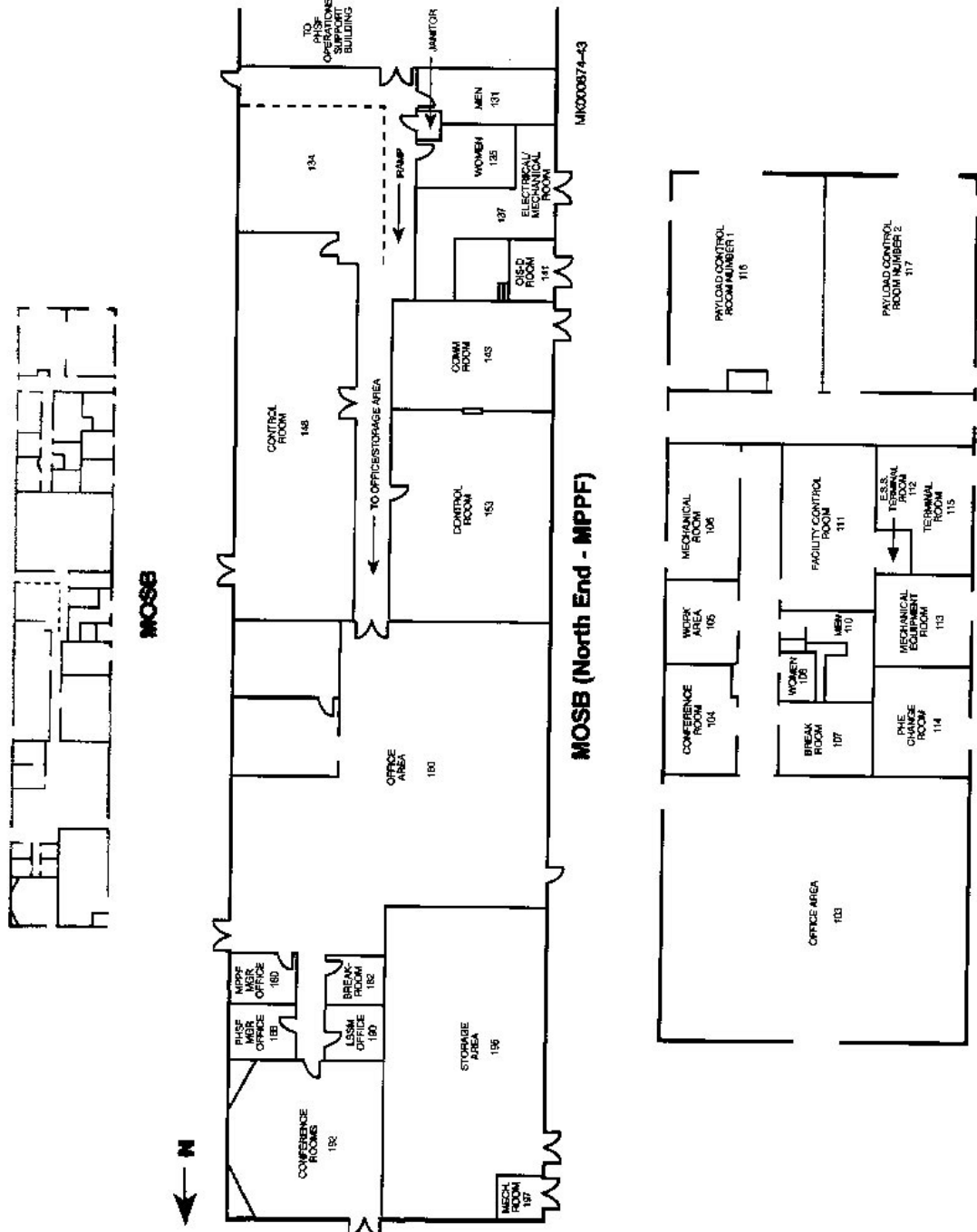
- a. A & DC
- b. OIS-D
- c. T & CD

4.3.6 COMMUNICATIONS ROOM. The MOSB communications room, 143, provides fully-equipped racks and wall-mounted equipment (i.e., telephones, telephone and data distribution frames) to support the following communication systems:

- a. A & DC
- b. P & AW
- c. T & CD
- d. WBFO

4.3.7 MPPF. The MPPF and the MOSB are approximately one quarter mile apart and are connected by a tarmac road. See section II for MPPF details.

RELEASED



MOSB (South End - PHSF)

Figure 4-1. MOSB Floor Plan

RELEASED

Table 4-1. MOSB Room Specifications

Rm No.	Dimensions	Usable Area	Ceiling Height	Largest Doorway	Floor	Walls	Ceiling	Function
137	3 m x 3.7 m (10 ft x 12 ft)	N/A	3 m (10 ft)	N/A	Concrete	GWB	EXP	Electrical/ Mechanical Room
141	7.9 m x 6.7m (26 ft x 22 ft)	N/A	3 m (10 ft)	N/A	Concrete	GWB	EXP	OIS-D Room
143	8.5 m x 6.7 m (28 ft x 22 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	Comm. Room
148	6.7 m x 20 m (22 ft x 66 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	Control Room
153	8.5 m x 11.5 m (28 ft x 38 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	Control Room
160	18.2 m x 18.2 m (60 ft x 60 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	Office Area
180	3 m x 3 m (10 ft x 10 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	MPPF Mgr. Office
182	3 m x 3 m (10 ft x 10 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	Breakroom
188	3 m x 3 m (10 ft x 10 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	PHSF Mgr. Office
190	3 m x 3 m (10 ft x 10 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	LSSM Office
192	9.1 m x 9.1 m (30 ft x 30 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	Conference Room
195	9.1 m x 18.2 m (30 ft x 60 ft)	1667.2 m (1800 ft ²)	3 m (10 ft)	4.6 m x 3 m (15 ft x 10 ft)	AF	GWB	ACT	Storage Area
197	3 m x 3 m (10 ft x 10 ft)	N/A	3 m (10 ft)	N/A	AF	GWB	ACT	Mechanical Room

LEGEND

ACT - Acoustic Tile

AF - Access Floor

CVT - Conductive Vinyl Tile

EF - Epoxy Floor

EXP - Expansion

GWB - Gypsum Wallboard - Painted

VT - Vinyl Tile

RELEASED

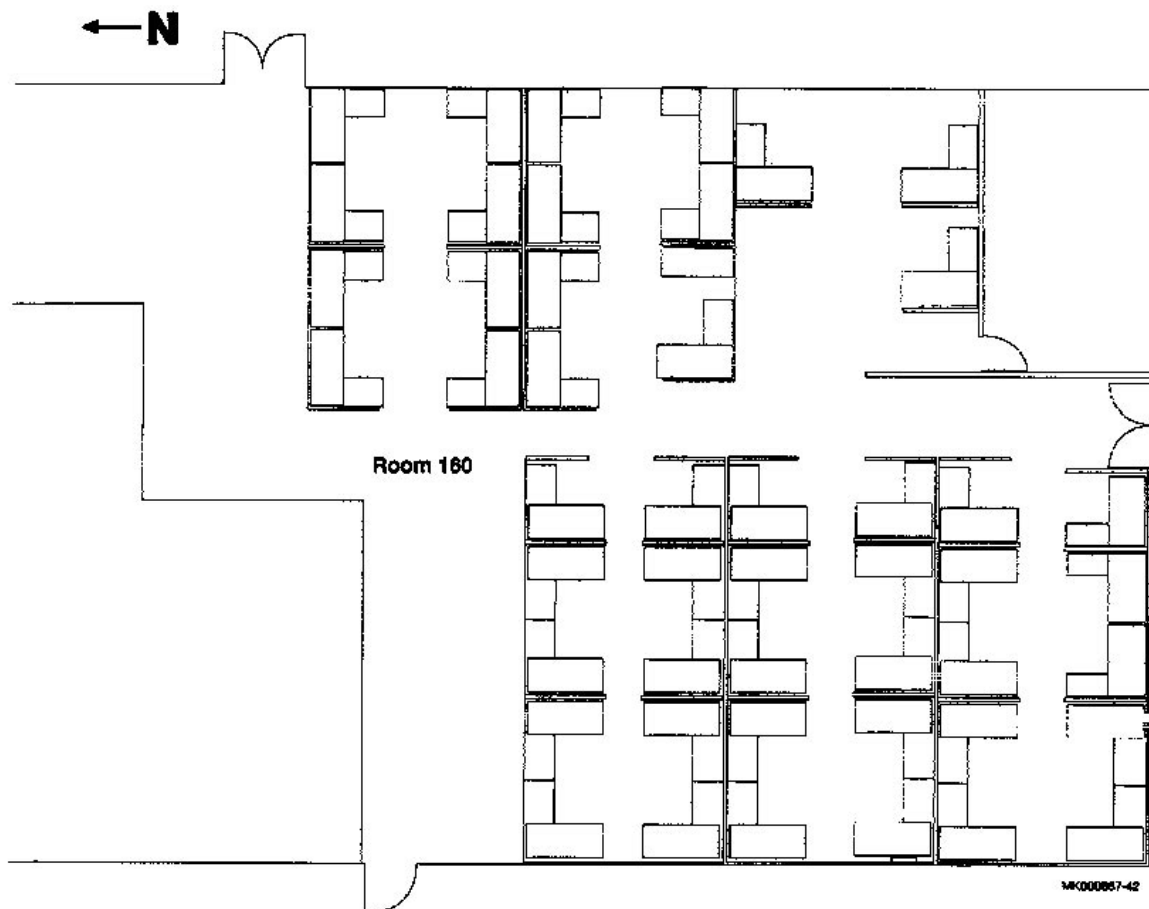


Figure 4-2. MOSB North End Office Area

RELEASED

NOT AVAILABLE AT THIS TIME

Figure 4-3. MOSB Electrical and Fire Protection Systems

RELEASED

SECTION V

COMMUNICATIONS AND DATA HANDLING

5.1 COMMUNICATIONS

The MPPF and MOSB are serviced by administrative and operational communication systems. These systems include the OIS-D, CCTV, administrative telephones, an internal public address (PA) system, and timing signals. Figures 5-1 and 5-2 (to be determined (TBD)) indicate locations for these systems for the MPPF and MOSB, respectively.

5.1.1 OPERATIONAL INTERCOMMUNICATION SYSTEM - DIGITAL. OIS-D is a multi-channel voice communication network interconnecting operational areas required for payload element processing at KSC with a capability to interface with the Transistorized Operational Phone System (TOPS) at CCAS. OIS-D units are located in the MPPF highbay, equipment airlock, and the MOSB control rooms. Portable jacks will be located in the MPPF lowbay.

5.1.2 CLOSED CIRCUIT TELEVISION. CCTV provides closed-circuit video surveillance of payload processing from operational areas (MPPF highbay and MOSB control rooms) to control and monitor areas in the payload control rooms and in the conference room of the MOSB.

5.1.3 OTHER COMMUNICATIONS. Other forms of communication located in the MPPF and MOSB include administrative telephones located in the highbay, equipment airlock, payload control rooms, facility control room, office area, and some of the other rooms available to customers. The internal PA system with an aural warning device can be heard throughout the MPPF, MOSB, and surrounding areas. Timing and countdown clocks (displaying Greenwich Mean Time/ Mission Elapsed Time (MET)) are installed in the MPPF highbay, MOSB control rooms, and in the MOSB conference room.

5.2 DATA HANDLING

Several data handling systems are available in the MPPF. The payload LSSM should be contacted for current data handling capabilities.

5.2.1 WIDEBAND CABLE TRANSMISSION SYSTEM (WBTS). WBTS provides closed-circuit transmission of complex waveform electromagnetic signals within the 30-hertz (Hz) to 4.5-megahertz (MHz) frequency spectrum at 1.0 Vp-p +/- 0.2 V terminated into a 124 ohms balanced load. These signals include TV video information, Launch Processing System (LPS) data trains, high-density operational intercommunications, multiplex telecommunication carriers, timing distribution, and system and event

command response display data. An Interrange Instrumentation Group (IRIG)-B timing interface is located in the highbay of the MPPF and in the MOSB. Other analog and digital data systems associated with payload checkout, launch preparation, and postlanding equipment performance interrogations are available also.

Wideband frequency (30 Hz to 4.5 MHz) lines connect the MPPF and the MOSB. Payload GSE will be connected to a standard interface panel available in each control room. Present circuit assignments do not include any capability for extending these lines from the MOSB to other KSC facilities. The MPPF-to-MOSB lines are 24 balanced Twinax of 124-ohm impedance, 5 balanced Twinax of 78-ohm impedance, and 5 RG11/U coaxial cables. In addition, fiber optics lines exist between the MPPF and MOSB.

Table 5-1. RF Capability for the MPPF and MOSB

Band	Number of Links	Interface
C	2	LC-39A&B, VPF, AE
Ku	2	LC-39A&B, GMIL, VPF, AE
S	2	LC-39A&B, VPF, GMIL, S, AE, OPF
X	2	LC-39A&B, VPF, GMIL

5.2.2 AUDIO FREQUENCY CAPABILITY. An audio frequency cable connects the MPPF to the MOSB. The MPPF-to-MOSB pairs are twisted 22 gage with a 600-ohm nominal impedance at audio frequencies.

5.2.3 RADIO FREQUENCY (RF) CAPABILITY. Not available at this time.

RELEASED

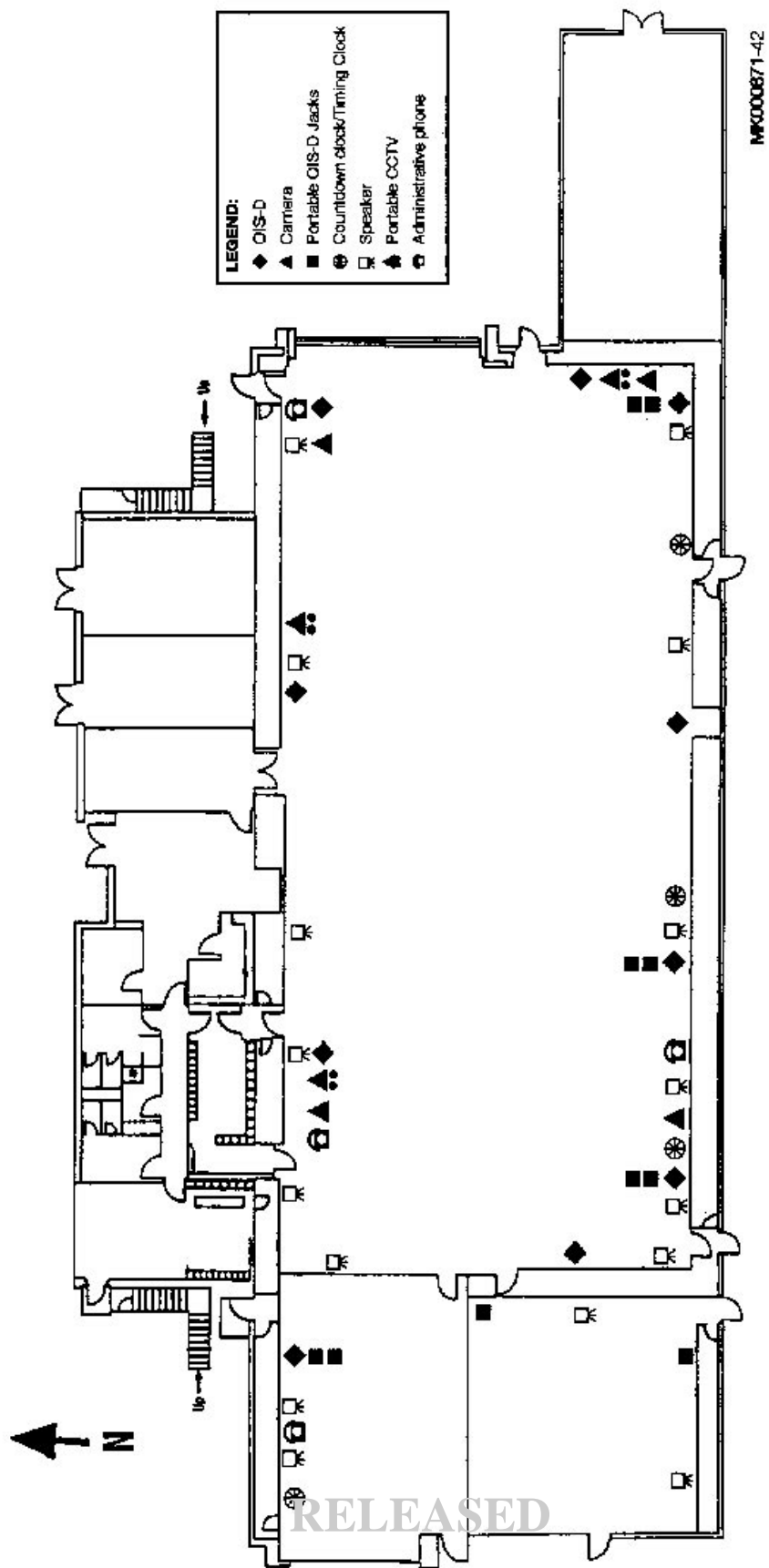


Figure 5-1. MPPF Communication Systems

NOT AVAILABLE AT THIS TIME

Figure 5-2. MOSB Communications Systems

RELEASED

SECTION VI**FACILITY DESCRIPTION SUMMARY, MPPF****6.1 FLOOR SPACE**

a. Highbay	7,357.68 m ² (7,920 ft ²)
b. Lowbay	1073.9 m ² (1,156 ft ²)
Cleanroom tent	434.7 m ² (468 ft ²)

6.2 CLEAR VERTICAL HEIGHT

a. Highbay	18.9 m (62 ft)
b. Lowbay	6 m (20 ft)
Cleanroom tent	2.4 m (8 ft)

6.3 EQUIPMENT ENTRY

a. Highbay, east side Vertical lift	8.5 m wide x 12.8 m high (28 ft x 42 ft)
b. Lowbay Roll up	6.1 m wide x 4.6 m high (20 ft x 15 ft)
c. Equipment Airlock Roll up	6.1 m wide x 4.6 m high (20 ft x 15 ft)
Vertical lift	6.1 m wide x 4.6 m high (20 ft x 15 ft)

6.4 CRANE/HOIST

Highbay	18.15-metric ton (20-ton) bridge crane
---------	--

6.5 CRANE HOOK HEIGHT

14.9 m (49 ft)

RELEASED

6.6 SYSTEMS/EQUIPMENT

a. Highbay

- | | |
|---------------------|---|
| (1) GHe | 206.7 bars (3,000 psig)
51.7 bars (750 psig) |
| (2) GN ₂ | 206.7 bars (3,000 psig)
51.7 bars (750 psig) |
| (3) Compressed Air | 8.6 bars (125 psig)
6.2 bars (90 psig) |
| (4) Vacuum | Throughout highbay, lowbay, and equipment airlock |
| (5) Potable water | Highbay floors |

b. Lowbay

- | | |
|--------------------|----------------------------|
| (1) Compressed air | 8.6 bars (125 psig) |
| (2) Potable water | Restrooms, water fountains |

c. Fire protection equipment

Highbay: automatic fire detection systems (UV/IR detectors), fire extinguishers and fire hose connections, automated water deluge system (inactive);
Lowbay: equipment airlock, Communications room; pre-action, dry pipe sprinkler system; remaining facility: wet pipe system.

6.7 TEMPERATURE/RELATIVE HUMIDITY

21.1 to 2.8 °C (71 +/- 6°)/55 percent max R.H.

6.8 CLEANLINESS

Supply air, class 100 nominal, class 5,000 guaranteed, hydrocarbon content -15ppm maximum

RELEASED

6.9 PAYLOAD CANISTER

Before payload transfer, the payload canister will be rolled into the MPPF via the east bay door, with the following footprint:

Canister

25 m x 12.2 m (82 ft x 40 ft) (open)

**6.10 COMMUNICATIONS
AND DATA HANDLING
EQUIPMENT**A & DC

- a. 25 MPPF user locations; 92 MOSB user locations
- b. high speed data (token ring) - selected user locations
- c. low speed data (ethernet) - all user locations
- d. telephone - all user locations

CCTV

- a. video surveillance of payload processing activities from operational areas
- b. MPPF circuits controlled/routed via the Space Station Processing Facility (SSPF) central video switch
- c. remote control cameras
- d. portable video sources supported in the bay areas

OIS-D

- a. KSC-wide 512 channel digital voice network
- b. unlimited, non-blocking, conferencing capability
- c. digital-to-optical signal and optical-to-digital signal translation
- d. A/D and D/A conversion

P & AW

- a. informs personnel of emergency conditions and public announcements
- b. connected to KSC industrial network
- c. supports interior hallways, highbay, and areas external to the facility

RELEASED

T & CD

- a. distribution/display of master timing and countdown signals
- b. wall-mounted displays (CDT, GMT/UTC, MET)
- c. timing interface panels (IRIG-A/IRIG-B, CDT, MET, simulated time)

External communications (wideband/fiber optics, outside cable plant)

- a. single mode/multi-mode fibers and 22 AWG copper-based cables
- b. analog signals up to 12 MHz
- c. asynchronous digital signals up to 8 Mbps
- d. RS423 and RS422 multiplexed signals
- e. TI transmissions over a synchronous optical network

RELEASED

575A K-STSM-14.01.17 FACILITIES HANDBOOK FOR MULTI-PAYLOAD PROCESSING
FACILITY (ELECTRONIC LIST) 4/27/95

CG	R. HEUSER
CG-ESD-2	T. KREUZINGER
CG-LSO	W. FLETCHER
CG-LSO	K. MEASE
CG-LSO-1	D. HAGIST
CM-PMO	C. BEGGS
CS	M. CARDONE
CS-EXD	J. LACKOVICH
CS-EXD-2	G. VEAUDRY
CS-EXD-3	C. MCPHILLIPS
CS-OTE	R. BOURNE
CS-OTE-2	M. RODRIGUEZ
CS-OTE-3	M. KIENLEN
CS-PED	S. BARTELL
CS-PED-1	J. LINK
CS-PED-2	S. BRIGGS
CS-PED-2	M. MATIS
CS-PED-3	G. WILLIAMS
CS-PED-4	T. ARNOLD
CS-PTS	D. WEBB
CS-PTS-1	L. HOLLEY
CS-PTS-2	C. JACOBSON
JPL-AO/CCAFS	S. BERGSTROM
MDS&DS-KSC-F100	T. SMITH
MDS&DS-KSC-F120	C. KLEINSCHMIDT
MDS&DS-KSC-F126	R. BAUMAN
MDS&DS-KSC-F128	L. EDLUND
MDS&DS-KSC-F140	G. THURN
MDS&DS-KSC-F150	J. KOCH
MDS&DS-KSC-F222	R. ZOHLE
MDS&DS-KSC-F250	J. BRANNIGAN
MDS&DS-KSC-F260	R. CHURNELL
MDS&DS-KSC-F270	J. LAROCQUE
MDS&DS-KSC-F358	C. GUZMAN
MDS&DS-KSC-F364	B. PETERSON
MDS&DS-KSC-F602	D. CROOKER
MDS&DS-KSC-F626	P. SECCURO
MDS&DS-KSC-F674	J. PASTER

TOTAL 39

For distribution changes contact your Validation Representative:

KSC/CM--P. Davis:[CM-LMD-2,7-7755]

KSC/DE/DF/DL--J. Potter:[DF-FSO,7-4112]

KSC/RQ--D. Coleman:[RQ-ADM,7-3577]

KSC/IM--H. Brown:[IM-SST-A,7-4540]

KSC/TM--K. Biega:[TM-ADM,7-3898]

ALL OTHERS [PAYLOAD]--P. Davis, CG-LMD-2, (407)867-7755

ALL OTHERS [SHUTTLE]--K. Biega, TM-ADM (407)867-3398

RELEASED

SYSTEM PROBLEMS/PERFORMANCE--KSC Documents Library, **LIBRARY-D, 7-9601/3613**

RELEASED

575B K-KSTS-14.01.17 FACILITIES HANDBOOK FOR MULTI-PAYLOAD PROCESSING
FACILITY (NON-ELECTRONIC LIST) 4/27/95

45 SPW/SESE	W. BREYER	
AC-PRO	N. TALLUTO	
BOC-323	S. MCGOVERN	
CG-ESD	S. KERR	7
CG-ESD-2	B. GRAF	
CG-ESD-2B	K. POTTER	
CG-LSO-1	C. ARNOLD	
CG-LSO-1	H. PEETE	6
CG-LSO-1J	M. MCCALMAN	
CG-LSO-2	LIBRARY	25
CS-EXD-1		
CS-OTE-1		
DE-PMO-3	H. HILTON	
DE-PMO-5		
DF-ESD-2	B. NELSON	
DF-ESD-2A	W. GLUSING	
DF-FDD	D. MINDERMAN	
FORMS WAREHOUSE		30
IM-FEO		
IM-FEO-B	D. TWEED	
IM-PEC		
IM-PEI	LIBRARY	
IM-PSD		3
IM-SPS	G. WISTRAND	
IM-SPS-A	M. STEVENS	
IM-SPS-A	C. STAUBUS	
IM-SPS-B	C. BURCH	
LIBRARY-D	KSC LIB DOCS	2
LSO-038	LIBRARY	
MDS&DS-KSC-F142	C. ATWELL	
MDS&DS-KSC-F150	M. CLEMENS	
MDS&DS-KSC-F200	J. SCHOFIELD	
MDS&DS-KSC-F336	J. SALAMONE	
MDS&DS-KSC-F376	LIBRARY	15
MDS&DS-KSC-F380	B. BURCH	
MDS&DS-KSC-F546	W. SMITH	
MDS&DS-KSC-F658	TDC LIBRARY	
MMC-AF	E. O'CONNOR	
RO-PAY	C. ZIMMERMAN	
LERC-60-3	A. LILLY	
TOTAL	124	

For distribution changes contact your Validation Representative:

KSC/CM--P. Davis:[CM-LMD-2,7-7755]

KSC/DE/DF/DL--J. Potter:[DF-FSO,7-4112]

KSC/RQ--D. Coleman:[RQ-ADM,7-3577]

KSC/IM--H. Brown:[IM-SST-A,7-4540]

KSC/TM--K. Biega:[TM-ADM,7-3898]

ALL OTHERS [PAYLOAD]--P. Davis, CC-LMD 2, (407) 657-7755

RELEASED

ALL OTHERS [SHUTTLE]--K. Biega, **TM-ADM**, (407)867-3898
SYSTEM PROBLEMS/PERFORMANCE--KSC Documents Library, **LIBRARY-D**, 7-9601/3613

RELEASED